IN THE CLAIMS:

Claims 1-54 (Canceled).

55. (New) A method of gasifying organic containing substances and/or substance mixtures comprising:

a) feeding said organic containing substances and/or substance mixtures into a pyrolysis reactor and moving said organic containing substances and/or substance mixtures through said pyrolysis reactor;

b) maintaining the organic containing substances and/or substance mixtures in contact with a heat carrier medium so that rapid pyrolysis takes place to at least partially cause said organic containing substances and/or substance mixtures to react into pyrolysis products, said pyrolysis products including a solid residue and pyrolysis gases, said pyrolysis gases including a condensable component, said solid residue including carbon;

c) feeding at least a portion of said solid residue and a heat carrier medium into a firing in which said solid residue containing carbon is fired to at least partially form a waste gas and ash, said heat carrier material being a fire-resistant material having a sufficient mechanical, chemical and thermal stability at a temperature of at least about 600°C;

d) directing at least a portion of heat generated from said firing into said pyrolysis reaction, said generated heat at least partially forming said heat carrier medium;

e) feeding at least a portion of said pyrolysis gases and a reactant into a second reaction zone that is at least partially heated by an indirect heat exchanger to form a gas product having a high caloric value, said heat exchanger at least partially supplied heat from said waste gas; and,

f) removing said ash from said firing and at least partially feeding said ash into said pyrolysis reactor.

56. (New) The method as defined in claim 55, wherein said pyrolysis reactor includes a moving bed reactor, a rotary drum reactor or combinations thereof

57. (New) The method as defined in claim 55, wherein said rapid pyrolysis is carried out at a temperature of about 550-650°C.

58. (New) The method as defined in claim 56, wherein said rapid pyrolysis is carried out at a temperature of about 550-650°C.

59. (New) The method as defined in claim 55, wherein said reaction of said pyrolysis gases with said reactant in said second reaction zone is carried out at a temperature of about 900-1000°C.

60. (New) The method as defined in claim 58, wherein said reaction of said pyrolysis gases with said reactant in said second reaction zone is carried out at a temperature of about 900-1000°C.

61. (New) The method as defined in claim 55, including the step of at least partially reacting said pyrolysis gases with said reactant in the presence of a catalyst.

62. (New) The method as defined in claim 60, including the step of at least partially reacting said pyrolysis gases with said reactant in the presence of a catalyst.

63. (New) The method as defined in claim 61, wherein said catalyst includes a material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel or mixtures thereof.

64. (New) The method as defined in claim 62, wherein said catalyst includes a material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel or mixtures thereof.

65. (New) The method as defined in claim 61, wherein said step of reacting includes at least partially feeding said catalyst in said second reaction zone.

66. (New) The method as defined in claim 64, wherein said step of reacting includes at least partially feeding said catalyst in said second reaction zone.

67. (New) The method as defined in claim 65, including the steps of at least partially separating said catalyst from said reactant after said catalyst has existed said second reaction zone and then at least partially returning said catalyst to said second reaction zone.

68. (New) The method as defined in claim 66, including the steps of at least partially separating said catalyst from said reactant after said catalyst has existed said second reaction zone

and then at least partially returning said catalyst to said second reaction zone.

69. (New) The method as defined in claim 55, including the steps of at least partially dedusting and quenching said pyrolysis gases after said reaction with said reactant.

70. (New) The method as defined in claim 64, including the steps of at least partially dedusting and quenching said pyrolysis gases after said reaction with said reactant.

71. (New) The method as defined in claim 55, wherein the heat carrier medium includes a material selected from the group consisting of sand, gravel, split, aluminum silicate, corundum, graywacke, quartzite, cordierite, calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof.

72. (New) The method as defined in claim 70, wherein the heat carrier medium includes a material selected from the group consisting of sand, gravel, split, aluminum silicate, corundum, graywacke, quartzite, cordierite, calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof.

73. (New) The method as defined in claim 55, wherein the heat carrier medium has a maximum width of about 1-40mm.

74. (New) The method as defined in claim 72, wherein the heat carrier medium has a maximum width of about 1-40mm.

75. (New) The method as defined in claim 55, wherein said pyrolysis gases including tar.

76. (New) The method as defined in claim 74, wherein said pyrolysis gases including tar.

77. (New) The method as defined in claim 55, including the step of at least partially dedusting said pyrolysis gases prior to combining said pyrolysis gases with said reactant.

78. (New) The method as defined in claim 76, including the step of at least partially dedusting said pyrolysis gases prior to combining said pyrolysis gases with said reactant.

79. (New) The method as defined in claim 55, including the step of firing at least a portion of said pyrolysis gas to produce heat and using said heat in a process selected from the group consisting of said pyrolysis, said reaction of said pyrolysis gases with said reactant or combinations thereof.

80. (New) The method as defined in claim 78, including the step of firing at least a portion of said pyrolysis gas to produce heat and using said heat in a process selected from the group consisting of said pyrolysis, said reaction of said pyrolysis gases with said reactant or combinations thereof.

81. (New) The method as defined in claim 55, wherein heat exchanger includes an

indirect heat exchanger.

82. (New) The method as defined in claim 80, wherein heat exchanger includes an indirect heat exchanger.

83. (New) The method as defined in claim 65, wherein said catalyst is at least partially fed into said second reaction zone in an entrained flow mode.

84. (New) The method as defined in claim 82, wherein said catalyst is at least partially fed into said second reaction zone in an entrained flow mode.

85. (New) The method as defined in claim 65, wherein the heat exchanger includes a catalyst filling.

86. (New) The method as defined in claim 82, wherein the heat exchanger includes a catalyst filling.

87. (New) The method as defined in claim 65, wherein said heat exchanger includes at least one pipe in which said pyrolysis gases are at least partially directed therethrough, said at least one pipe at least partially including a catalytically active material.

88. (New) The method as defined in claim 82, wherein said heat exchanger includes at least one pipe in which said pyrolysis gases are at least partially directed therethrough, said at least

one pipe at least partially including a catalytically active material.

89. (New) The method as defined in claim 55, wherein the heat exchanger includes a catalyst bed.

90. (New) The method as defined in claim 82, wherein the heat exchanger includes a catalyst bed.

91. (New) A method for the gasifying organic containing materials comprising:

a) feeding the organic containing material into a pyrolysis reactor, said organic containing material exposed to a heat carrier medium in the pyrolysis reactor to at least partially cause at least partial pyrolysis of said organic containing compound, said at least partial pyrolysis of said organic containing compound forming at least two pyrolysis products, said at least two pyrolysis products including pyrolysis gas and at least partially solid carbon containing residue;

b) feeding at least a portion of said solid carbon containing residue and said heat carrier medium into a firing, said at least partially solid carbon containing residue heated in said firing and forming waste gas and ash, said heat carrier medium being heated by said firing;

c) feeding at least a portion or said ash and said heated heat carrier from said firing to said pyrolysis reactor, said ash and said heated heat carrier being combined with said organic containing material in said pyrolysis reactor;

d) feeding said pyrolysis gas into a gas reactor to produce a product gas having a high caloric value; and,

e) directing at least a portion of said waste gas from said firing to said gas reactor

to at least partially heat said pyrolysis gas in said gas reactor.

92. (New) The method as defined in claim 91, wherein said pyrolysis reactor is selected from the group consisting of a moving bed reactor, a rotary drum reactor or combinations thereof.

93. (New) The method as defined in claim 91, wherein said pyrolysis gas includes condensable substances.

94. (New) The method as defined in claim 91, including the step of feeding a reactant into said gas reactor with said pyrolysis gas, at least a portion of said pyrolysis gas reacting with at least a portion of said reactant in said gas reactor.

95. (New) The method as defined in claim 94, wherein said reactant includes steam.

96. (New) The method as defined in claim 91, wherein said gas reactor is at least partially included in an indirect heat exchanger, said indirect heat exchanger at least partially heated by said waste gas, said waste gas substantially prevented from being mixed with said pyrolysis gas.

97. (New) The method as defined in claim 91, wherein said at least partial reaction of said pyrolysis gas in said gas reactor is carried out in the presence of a catalyst.

98. (New) The method as defined in claim 96, wherein said at least partial reaction of said pyrolysis gas in said gas reactor is carried out in the presence of a catalyst.

99. (New) The method as defined in claim 98, wherein said heat exchanger includes catalytic chamber selected from the group consisting of at least one pipe for flow of said pyrolysis gases therethrough wherein said at least one pipe includes a catalytically active material, a solid bed reactor or combinations thereof.

100. (New) The method as defined in claim 91, wherein said pyrolysis is carried out at a temperature of about 550-650°C.

101. (New) The method as defined in claim 91, wherein said at partial reaction of said pyrolysis gas is carried out at a temperature of about 900-1000°C.

102. (New) The method as defined in claim 91, including the step of pretreating said organic containing material prior to feeding said organic containing material into said pyrolysis reactor, said pretreating step including a step of at least partially dry said organic containing material.

103. (New) The method as defined in claim 102, wherein said pretreating step including a step of at least partially pulverizing said organic containing material.

104. (New) The method as defined in claim 97, wherein said catalyst includes a material selected from the group consisting of calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel or mixtures thereof.

105. (New) The method as defined in claim 91, including the step of at least partially

dusting pyrolysis gas prior to being fed into said gas reactor.

106. (New) The method as defined in claim 91, including the step of firing at least a portion of said pyrolysis gas to produce heat and using said heat in a process selected from the group consisting of said pyrolysis, said reaction of said pyrolysis gases with said reactant or combinations thereof.

107. (New) The method as defined in claim 91, wherein said firing includes a grate firing.

108. (New) The method as defined in claim 91, wherein the heat carrier medium includes a material selected from the group consisting of sand, gravel, split, aluminum silicate, corundum, graywacke, quartzite, cordierite, calcium/magnesium oxide, dolomite, calcite, corundum, nickel, nickel oxide, nickel aluminate, nickel spinel, steel objects, ceramic objects or mixtures thereof.

109. (New) The method as defined in claim 108, wherein said heat carrier medium has an average grain size of about 1-40mm.